

## CLAIMS

1. A method of alleviating or reducing pain in a mammal that comprises providing an effective amount of an extract from elderberry to a mammal in need thereof, wherein the extract is substantially free of anthocyanidins.
2. The method of claim 1 wherein the extract comprises at least one anthocyanin selected from the group consisting of cyanidin-3-glucoside, cyanidin-3,5-diglucoside, cyanidin-3-sambubioside, cyanidin-3-sambubioside-5-glucoside and mixtures thereof.
3. The method of claim 1 wherein the extract consists essentially of a mixture of cyanidin-3-glucoside, cyanidin-3,5-diglucoside, cyanidin-3-sambubioside, cyanidin-3-sambubioside-5-glucoside.
4. The method of claim 1 wherein the extract is provided in a unit dosage form and wherein each dosage provides at about 20 to 50 mg of anthocyanins.
5. The method of claim 1 wherein the extract is provided in a unit dosage form and wherein each dosage provides at least about 25 mg of anthocyanins.
6. The method of claim 1 wherein the pain is an acute pain.
7. The method of claim 1 wherein the pain is a chronic pain.
8. The method of claim 1 wherein the extract does not produce significant erosions in the gastric lining.
9. The method of claim 1 wherein the extract does not exhibit a significant propensity to induce gastric or intestinal ulceration.
10. The method of claim 4 wherein the mammal is a human, the dosage form is an oral dosage form, and the extract is provided by oral ingestion.

11. The method of claim 10 wherein after oral ingestion, the extract does not produce significant erosions in gastric lining.

5 12. A method of alleviating or reducing pain in a mammal that comprises providing an effective amount of an extract obtained from an anthocyanin-containing plant to a mammal in need thereof.

10 13. The method of Claim 12 wherein the anthocyanin-containing plant is selected from the group consisting of acerola, bilberry, black currant, black beans, black raspberry, black soybeans, blackberry, blueberry, boysenberry, carrot (purple), chokeberry, cranberry, echinacea, elderberry, grapes, hibiscus, loganberry, plum, pomegranate, potatoes (black, blue and purple), red cabbage, red currant, red raspberry, strawberry, sweet cherry, tart (sour) cherry and mixtures thereof.

15 14. The method of Claim 12 wherein the anthocyanin-containing plant is selected from the group consisting of bilberry, black raspberry, boysenberry, chokeberry, elderberry, tart cherry, and mixtures thereof.

20 15. The method of Claim 12 wherein the anthocyanin-containing plant is selected from the group consisting of barberry, black bean, blackberry (American), blackberry (European), black currant, black soybean, blueberry, hibiscus, loganberry, red currant, red raspberry, sweet cherry, and mixtures thereof.

25 16. The method of Claim 12 wherein the anthocyanin-containing plant is selected from the group consisting of acerola, black grapes, black potatoes, cranberry (American), cranberry (European), echinacea, plum, pomegranate, purple carrot, red cabbage, strawberry, and mixtures thereof.

30 17. The method of Claim 12 wherein the anthocyanin-containing plant is selected from the group consisting of bilberry, elderberry, tart cherry, and mixtures thereof.

18. The method of Claim 13 wherein the tart cherry is of the Balaton variety.

19. The method of Claim 13 wherein the tart cherry is of the Montmorency variety.

5 20. A method of alleviating or reducing a symptom of pain in a mammal that comprises providing an effective amount of an extract obtained from an anthocyanin-containing plant to a mammal in need thereof.

10 21. The method of claim 20 wherein the symptom of pain is selected from the group consisting of arthritis, dysmenorrhea, headache, joint pain, muscular pain, osteoarthritis, and combinations thereof.

15 22. The method of claim 20 wherein the anthocyanin-containing plant is elderberry.

20 23. A method of alleviating or reducing pain in a mammal that comprises providing an effective amount of an anthocyanin extract extracted from an anthocyanin-containing plant to a mammal that is experiencing pain, wherein the extract comprises at least one anthocyanin selected from the group consisting of cyanidin-3-glucoside, cyanidin-3,5-diglucoside, cyanidin-3-sambubioside, cyanidin-3-sambubioside-5-glucoside, cyanidin-3-galactoside, cyanidin-3-rutinoside, cyanidin-3-glucosylrutinoside, cyanidin-3-sophoroside, cyanidin-3-arabinoside, cyanidin-3-xyloside, peonidin-3-rutinoside, and mixtures thereof, and wherein the extract is substantially free of anthocyanidins.

25 24. The method of Claim 23 wherein the extract comprises at least one anthocyanin selected from the group consisting of cyanidin-3-glucoside, cyanidin-3,5-diglucoside, cyanidin-3-glucosyl rutinoside, cyanidin-3-sambubioside, cyanidin-3-sambubioside-5-glucoside,

30 25. The method of Claim 23 wherein the extract comprises at least one anthocyanin selected from the group consisting of cyanidin-3-glucoside , cyandin-3-

rutinoside, cyanidin-3-glucosylrutinoside, cyanidin-3-sophoroside, peonidin-3-rutinoside, and mixtures thereof.

26. The method of Claim 23 wherein the extract comprises at least one anthocyanin selected from the group consisting of cyanidin-3 glucoside, cyanidin-3 galactoside and mixtures thereof.

27. The method of Claim 23 wherein the extract comprises at least one anthocyanin selected from the group consisting of cyanidin-3 glucoside, cyanidin-3 galactoside, cyanidin-3 arabinoside, cyanidin-3 xyloside, and mixtures thereof.

28. A method to reduce the propensity of gastric or intestinal ulceration of an active agent, which has a propensity to induce gastric or intestinal ulceration in a mammal, the method comprising the step of providing an effective amount of an extract obtained from an anthocyanin-containing plant.

29. The method of claim 28 wherein the extract is provided before the active agent is administered to the mammal.

30. The method of claim 22 wherein the extract is provided about the same time when the active agent is administered to the mammal.

31. The method of claim 28 wherein the extract is provided after the active agent is administered to the mammal.

32. The method of claim 28 wherein the active agent is selected from the group consisting of analgesics, salicylates, NSAIDs, opioid drugs, corticosteroids, adjuvant agents, and combinations thereof.

33. The method of claim 28 wherein the active agent is selected from the group consisting of salicylic acid, derivatives of salicylic acid, para-aminophenol, derivatives of para-aminophenol, indole, and indene acetic acid derivatives,

heteroaryl acetic acids, arylpropionic acids, anthranilic acids, enolic acids, alkanones, and combinations thereof.

34. The method of claim 32 wherein the analgesic is acetaminophen.

5

35. The method of claim 32 wherein the NSAID is selected from the group consisting of ibuprofen, naproxen sodium, celecoxib, and rofecoxib and combinations thereof.

10

36. A method to reduce gastric or intestinal ulceration in a mammal that comprises providing an effective amount of an anthocyanin.

37. The method of claim 36 wherein the anthocyanin is obtained as an extract from an anthocyanin-containing plant.

15

38. The method of claim 37 wherein the extract is substantially free of anthocyanidins.

20

39. The method of claim 37 wherein the extract comprises at least one anthocyanin selected from the group consisting of cyanidin-3-glucoside, cyanidin-3,5-glucoside, cyanidin-3-sambubioside, cyanidin-3-sambubioside-5-glucoside and mixtures thereof.

25

40. The method of claim 36 wherein the mammal is a human.

41. The method of claim 40 wherein the dosage form is an oral dosage form.

30

42. A dietary supplement comprising at least one pain-reducing agent and an effective amount of elderberry wherein the supplement is effective to alleviate or reduce pain and does not induce significant gastric or intestinal side effects.

43. The dietary supplement of Claim 42 wherein the pain-reducing agent is selected from the group consisting of analgesics, NSAIDs, opoid drugs,

corticosteroids, adjuvant agents, and combinations thereof.

44. A method for inhibiting cyclooxygenase or prostaglandin H synthase enzymes comprising providing an anthocyanin selected from the group consisting of cyanidin-3-glucoside, cyanidin-3,5-glucoside, cyanidin-3-sambubioside, cyanidin-3-sambubioside-5-glucoside, and mixtures thereof isolated from the fruit of elderberry to inhibit the enzymes.

45. A food supplement having anti-inflammatory properties wherein the food supplement comprises:

(a) an anthocyanin-enriched extract having an anti-inflammatory activity greater than the anti-inflammatory activity found in the natural fruit, wherein the extract is obtained from two or more plants selected from the group consisting of acerola, bilberry, black currant, black beans, black raspberry, black soybeans, blackberry, blueberry, boysenberry, carrot (purple), chokeberry, cranberry, echinacea, elderberry, grapes, hibiscus, loganberry, plum, pomegranate, potatoes (black, blue and purple), red cabbage, red currant, red raspberry strawberry, sweet cherry, tart (sour) cherry and mixtures thereof, and wherein the extract provides a greater cyclooxygenase 2 (COX-2) inhibitory activity than cyclooxygenase 1 (COX-1) inhibitory activity; and

(b) a pharmaceutically acceptable diluent or excipient.

46. A food supplement having anti-inflammatory properties wherein said food supplement comprises:

(a) an anthocyanin-containing extract that provides at least about 25 mg of total anthocyanins per a unit dose wherein 95% of the anthocyanins are cyanidin glycosides;

(b) a pharmaceutically acceptable diluent or excipient.

47. A dietary supplement comprising:

(a) at least one joint health agent that is effective to maintain or improve joint health;

- (b) an effective amount of an anthocyanin-enriched plant extract having an anti-inflammatory activity greater than the anti-inflammatory activity found in the plant; and
- (c) a pharmaceutically acceptable diluent or excipient.

5

48. The dietary supplement of Claim 46 wherein the joint health agent is selected from the group consisting of glucosamine, chondroitin, ginger, boswellia, tumeric, curcumin, fever few, bromelain, and salts, derivatives, and mixtures thereof.

10

49. The dietary supplement of Claim 46 wherein the anthocyanin-enriched extract is obtained from a plant selected from the group consisting of acerola, bilberry, black currant, black beans, black raspberry, black soybeans, blackberry, blueberry, boysenberry, carrot (purple), chokeberry, cranberry, echinacea, elderberry, grapes, hibiscus, loganberry, plum, pomegranate, potatoes (black, blue and purple), red

15

cabbage, red currant, red raspberry strawberry, sweet cherry, tart (sour) cherry, and mixtures thereof.

50. The dietary supplement of Claim 46 wherein the anthocyanin-enriched extract is obtained from a plant selected from the group consisting of tart cherry, elderberry,

20

bilberry, chokeberry and black soybeans.

51. The dietary supplement of Claim 46 wherein the anthocyanin-enriched extract is obtained from tart cherry.

25

52. The dietary supplement of Claim 46 wherein the anthocyanin-enriched extract is obtained from elderberry.

53. A dietary supplement comprising:

30

(a) at least one prostate health agent that is effective to maintain or improve normal prostate function,

(b) an effective amount of an anthocyanin-enriched plant extract having an anti-inflammatory activity greater than the anti-inflammatory activity found in the plant; and

a pharmaceutically acceptable diluent or excipient.

54. The dietary supplement of Claim 53 wherein the prostrate health agent is selected from the group consisting of saw palmetto, pumpkin seed, nettle root, and salts, derivatives and mixtures thereof.

55. A dietary supplement comprising:

- (a) at least one gamma-linolenic acid (GLA) agent that is effective to maintain or improve a woman's general well being during her menstrual cycle,
- 10 (b) an effective amount of an anthocyanin-enriched plant extract having an anti-inflammatory activity greater than the anti-inflammatory activity found in the plant; and
- (c) a pharmaceutically acceptable diluent or excipient.

- 15 56. The dietary supplement of Claim 55 wherein the GLA agent is obtained from a source selected from the group consisting of evening primrose, borage, black currant, chasteberry, ginger, and salts, derivatives, and mixtures thereof.